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A Study to Compare the Topics that are Outlined in the Virginia Communication Technology Curriculum Guide to the Topics that are Related in the Literature in the Field of Communication Technology

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A STUDY TO COMPARE THE TOPICS THAT ARE OUTLINED IN THE VIRGINIA COMMUNICATION TECHNOLOGY CURRICULUM GUIDE TO THE TOPICS THAT ARE RELATED IN THE LITERATURE IN THE FIELD OF COMMUNICATION TECHNOLOGY

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APPROVAL PAGE

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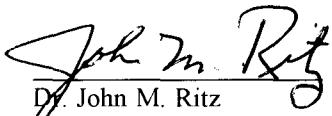

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INTRODUCTION

Communication technology is a school subject that is vastly expanding including its new technologies. Without communication technology there could be no interaction between people or machines. Communication technology consists of such aspects as graphic printing, desktop publishing and various other electronic communication media that allow people to transmit and receive data. In order to keep abreast of the latest advances in communication technology, people must be knowledgeable of and have the skills on how to operate or make use of the technologies. This education process should take place at an early age, preferably at the high school level. The reasoning behind this is so students who will soon be graduates can utilize this knowledge and skills to obtain a job or assist them in making decisions related to further education. This leads to the question of what to teach in such a class. There already exists a state wide curriculum guide in communication technology for the high school level, but the curriculum topics must reflect what the literature says is important to learn. The current Virginia curriculum is twelve years old.

The literature that will be used are textbooks that are written for the communication technology course. The chapters or topics in the texts are relevant according to each author; therefore there are no incorrect topics in any of the books that were used for this research. Some of the topics are identical with different approaches to teaching and there are some that are very different that do not appear in every textbook. The reason for this is to gain a better sampling of ideas that the authors had on their selection of topics that they felt were important for a student in communication technology to learn.

The curriculum should not spend a large amount of time on the history of communication technology. Although, an anthropological unit in the beginning of the course is recommended, it does not mean that one is necessary. This unit will serve as a foundation for the students to gain insight on where the world of communication technology has come from and how it came to be what it is today. All of the units that would make up the content of the course would be chosen topics that are relevant to society at the present moment. These units or chapters would all lead to a final unit that would not only wrap up the course but also leave the student a future to consider. A recommended unit of study could be at the end of the course, allowing teachers to focus on the future of communication technology. This would serve as an open-ended study for the prospects of communication technology in the future. These assumptions would be based on the information and skills that were learned throughout the course.

STATEMENT OF THE PROBLEM

The problem of this study was to compare the topics that are taught in Virginia Public Schools communication technology curriculum guide to topics that the literature in the field of communication technology suggests should be taught in the public schools.

RESEARCH GOALS

The research goals of this study were to determine:

1. The differences between the topics that are listed in the curriculum guide to the topics that are listed in textbooks that focus on communication technology.

2. The topics that should be added to the curriculum and the topics that are suggested for deletion would also be determined.

BACKGROUND AND SIGNIFICANCE

Technology programs educate students about new technologies that are developing and how to utilize/benefit from them. In order to keep with the tradition of this process, there must be an occasional check on the curriculum to see that it is still in touch with the outside world. It is pointless to teach students about technologies that are outdated and about processes that have not been used for many years. This is an injustice to the student and a poor reflection of what the program professes. This researcher choose to focus on the communication technology program because of its great advancements in the past few years that could have a profound effect on students and businesses. Therefore, a revision in the current curriculum of communication technology is indeed needed to uphold the highest level of quality education in Virginia Public Schools.

The Communication Technology course has gone through several changes due to the advancements of technology and the obsolescence of other knowledge. Such topics as type setting, which was a form of printing that was developed and used many years ago, are now not necessary to teach on a skill basis, but rather as an anthropological unit. There are new processes that can eliminate steps in offset lithography that are beginning to be used in the business world that are much more important for students to know how to use than an outdated process. There are also advancements in electronic communication such as computer video conferences, E-mail and other wireless communicative devices that are

shaping the world in which graduates will soon be working and living in. With an edge on the latest in technology, students can tackle problems that most adults would fear.

There is little written about this topic of change in the communication curriculum. Therefore, this signifies a need for further investigation to challenge the existing curriculum for revision. "If academics are not in sync theoretically and conceptually with the business world, they are not effectively communicating those theories and concepts to students; academics must be stronger in the area of application." (Perrigo, 1994, p. 16) This statement suggests a more applied foundation for a curriculum, therefore, eliminating materials that will not be relevant to learners of the future.

LIMITATIONS

The following limitations were used in conducting this study:

1. The Virginia curriculum for Communication Technology for the high school level (18-week session) was the basis for comparison.
2. The textbooks that were analyzed were high school level communication technology textbooks.
3. The topics that are currently suggested by the curriculum guide and the topics presented in the texts will be compared.
4. Articles related to communication technology as a course of study will also be analyzed to provide timely content for inclusion in a technology education program.

ASSUMPTIONS

This research study was based on the assumption that the curriculum for the high school level Communication Technology course is in need of updating because the topics for communication are constantly evolving. This researcher is attempting to determine if the current curriculum needs revision. It is important to keep in mind that the researcher was non-biased throughout this study and relied on current references in making decisions related to curriculum revisions.

PROCEDURES

The data for this research was collected from the Virginia curriculum guide for Communication Technology, Illinois curriculum guide for Communication Technology and textbooks that were written by authorities in the field of communication technology. The curriculums were reviewed for content as well as the textbooks. The Illinois curriculum guide was used as a source for content and presentation methodology. The topics were reviewed and compared to those in the texts so decisions could be made toward the selection of applicable content. Finally a suggested and revised list of topics was constructed for curriculum development purposes based upon data gathered from the research.

DEFINITION OF TERMS

The following terms are used throughout this study. They are listed to provide the reader a better understanding of the topics involved in this research.

1. Communication Technology - the use of knowledge, tools, and skills to send and receive messages.
2. Approved Virginia Curriculum for Communication Technology - a curriculum that was designed for the Communication course and approved for use in the Virginia Public School system.
3. Screen printing- a printing process in which ink is pushed through a stencil onto a material.
4. Lithography- a printing process that uses water to repel ink from non-image areas of the image carrier, allowing ink to exist only in areas transferring images to the paper to be printed.
5. Desktop Publishing- the combination of a desktop computer, special software, and a high quality graphics printer to form a system that can be used to create, edit, and produce a master original for printing operations.

OVERVIEW OF CHAPTER

In Chapter I, the researcher provided a brief introduction to the study. Information was provided about the background of the research as well as the need for the study. The limitations were set and assumptions made. Procedures on the manner in which the research will be conducted were stated and terms were defined. Chapter II will review the literature in regard to the topic. Chapter III will describe the methods and procedures used in conducting the study. Chapter IV will provide the findings of the research and Chapter V will summarize, conclude and offer future recommendations for the study.

CHAPTER II

REVIEW OF LITERATURE

Chapter II is the Review of Literature. This chapter will provide the reader with background information that is related to the research study. The study examines the topics that are currently taught in the Communication Technology classes in Virginia public high schools to the topics that are suggested by textbooks that are written for this specific area. The review of literature contains the following sections: (1) An overview of the topics that are currently found in the operational curriculum for Communication Technology that was approved by the state of Virginia, (2) A review of the topics that are found in literature that authors found to be important for the student to know and, (3) An examination of a curriculum model for Communication Technology that was implemented into public high schools in the State of Illinois.

AN OVERVIEW OF TOPICS FOUND IN THE CURRENT CURRICULUM FOR COMMUNICATION TECHNOLOGY

The curriculum guide for communications technology as approved by the State of Virginia was last revised in 1985. The curriculum is separated into eight sections with many topics listed under each section. The first section introduces communication by means of definitions of communication and the matrix of communication between humans and machines. Section two helps the student to develop a model of communication by listing the

major components of the communication system and constructing models of the different systems within communications. The next section, section three, examines the use of one-way telecommunication systems. This means that the student will study the basics of radio transmissions, principles of a phonograph, televisions and all of their sub-systems, methods of recording audio and video, and the production of programs that are broadcast over these one-way telecommunication systems. Section four deals with the study of two-way telecommunication. This is defined in the curriculum by studying the basic telegraph operations and principles, telephones, satellites, and creation and use of computer programs. The next section introduces drafting techniques and principles. This section is divided into examining the basic drafting equipment, the different types of drawings, and methods for reproducing drawings. The following section talks about graphic communications and image generation. The sub-sections discuss about the different processes for generating an image, the principles of photography, and development and finishing of photographic prints. Section seven concerns itself with the transfer of images for graphic communication. This transfer of images is relayed to the student by way of screen-printing, lithography, and other special purpose methods of printing. The last section of the curriculum guide is where the student takes all of the knowledge that they have learned and uses it to participate in a communication enterprise. This is accomplished by the development of a product package design and then taking part in a group enterprise project, either class restricted or the entire school. The curriculum does not provide a historical unit to set a foundation for the rest of the course material to build on. The guide also lacks a unit to tie the course content to the real world and allow student to see the impacts on communications technology as well as

prospects for the future in communication technology (Virginia Curriculum for Communication Technology, 1985).

A REVIEW OF THE TOPICS THAT ARE FOUND IN TEXTBOOKS THAT ARE GEARED FOR COMMUNICATION TECHNOLOGY COURSES

Textbooks are generally used as educational resources in public schools. The following topics are those that were found in several textbooks that were written for a communication technology course. The first text was titled Communication Systems by C.D. Johnson. The author divided the text into seven sections. These sections were labeled according to the type of communication system that they covered. The first section was an introduction into communication technology. The text completed this task by explaining communication as well as technology and the bringing together of the two to form a complete system. The second section dealt with the basic skills of communication through sketches, designs, quality assurance, problem solving, safety, and health concerns. All of these skills are those that help individuals to function in society today as well as in the past. The topics in section three are centered on graphic communications, especially drafting and computer aided drafting. This section teaches the students about all of the aspects of drafting from geometry to pattern making and, packaging to the use of computers in the field of drafting. Section four goes into detail about the photographic technologies that students need to learn. The topics in this section take the student from the basics of the camera to processing their own film. The fifth section of the text contains topics related to graphic arts and the use of computers in graphic arts (desktop publishing). The topics cover screen-printing,

lithography, printing and various types of image generation through the use of desktop publishing. The sixth section reveals topics that are related to the field of electronic communications. The topics range from computer basics, computer software, devices of data transfer, video and audio communications and communicating long distances with waves. The last section was a section that was written for the student to understand the scope and depth that the field of communications has on jobs and careers. It also reviews and interests the student to study the impacts of communication technology on society at a micro level and a macro level (Johnson, 1992).

Mark Sanders, author of Communication Technology- Today and Tomorrow, includes in his textbook emphasis on different topics. In the first section of the text, Sanders introduces the student to communication technology. He helps the student gain perspective on communication systems, the changing nature of communication technologies and the impacts that communication technology has on individuals and society. Section two starts the student off with data communication systems that includes an introduction to computers, the hardware and the applications that computers can complete. The author covers computers early on because he feels that computers affect all aspects of communication technology. The third section about technical design systems is broken down into three chapters. These three chapters are an introduction to technical design or more commonly known as the principles of technical design, the actual technical design processes and computer-aided drafting. The process chapter covers the traditional version of drafting, which is the pencil, and paper style, which is followed up by the new computer aided style

of drafting. Section four examines the optical systems of communication. This section covers the principles of optical systems and then continues with photography and concludes with the application of photography. The next section deals with the graphic production systems. The chapters in this section are message design, composition and assembly, then film conversion and assembly and finally the message transfer and product conversion. This all comes together to help the student understand how to compose a message in many different ways and send it in just as many different ways from the offset printing press to electronic data transfer. The last section of the text examined the audio and video systems. The section started off with the principles of audio and video communication. The next chapter in this section explains the equipment that is used in audio and video communications. The last chapter of the text talks about the applications for audio and video communications. One problem with this textbook is that there is no anthropological unit or a unit of summary or reflection to get the students to pose rhetorical questions about the prospects for communication technology. The text also lacks emphasis on electronic communication that is finding its way in to a large portion of today's society (Sanders, 1991).

Robert Barden and Michael Hacker's textbook, Communication Technology, takes a different route in teaching students about communication technology. This text is split up into five sections for study. The first section of the text starts with the nature of communication. It does this by means of investigating what communication is and the role that computers play in communications today. These authors feel that defining the importance of computers should be stated early on because of their profound effect on most aspects of communication. Section two reviews the technical and computer-aided drafting

system of communication technology. It begins with a chapter on sketching and illustration then learning drafting skills. The following chapters in this section focus on drafting for production of products and the use of computer aided drafting and design to take drafting to a higher level. Section three focuses on graphic reproductions. This section deals with image generation, design, transfer of images, image preparation, and finishing. It also exposes the student to desktop and electronic publishing. The next section in the text covers photography and motion pictures. Photography is sub-divided into cameras and film, photographic techniques and darkroom procedures. Motion pictures are divided into the study of motion pictures and animation. The text does not become involved into the details of motion pictures; it only wishes to expose the student to the principles of how a motion picture is produced. The text also supplies the basics of animation and what it takes to create an animated film. This chapter lacks information on the new techniques of creating, editing and animating pictures with the use of computers. Section five of the text introduces electricity and electronics of communication. This section is developed into six chapters. The first chapter is communication by wire, followed by radio and television communication, next is microwaves, satellites and fiber optics, then digital communication, followed up by systems for recording communication. This chapter covers some of the new technologies that are in use in today's society. The last section of the text talks about the future of communications. This last section covers information and technologies that are still under development. This chapter also examines the possible new technologies that could occur in each of the different systems of communication. The summary of the last chapter invites the

student to imagine what the possibilities are in the area of communication for the future (Barden and Hacker, 1990).

In the text written by Seymour, Ritz, and Cloghessy titled Exploring Communications, there are five sections with twenty-six chapters. The first section of this text starts the student off by going into a detailed introduction into communications. It accomplishes this by talking about the history, process, social and cultural influences, industries and careers in communications, and the technological systems of communication. This first section provides the student with all the information that they will need to understand communication and to start their investigation into the many systems of communication technology. Section two introduces the student to the concept of technical graphics. This is achieved by introducing the students to drafting. The rest of the chapters in this section follow through with the procedures for drafting and talk about industry's needs for drafting through the many types of drawings like, orthographic and pictorial drawings. Section three of this text introduces graphics that utilize many processes. First there is an introduction to graphics then graphic design and production. The next chapters cover screen-printing, lithographic printing, and photography. The last chapter talks briefly about some specialty printing methods. This section is rather large. It should have been broken down into more than one chapter to make the section a little easier to follow. Section four commits to introducing the student to the system of electronic communications. The two chapters are a basic introduction into electronic communications systems. The remaining chapters of section four talk about telecommunications, light and acoustical communication, broadcasting, and computers and data processing. This section covers a lot of information, from the basics

of electronic communication to computers and much in between. This section contains chapters that cover information that is pertinent for students to know in today's society. The fifth and final chapter is one that contains the most information out of all of the chapters in the book. Although, there are fewer chapter and pages, this last section asks the student to study communication in society, communication enterprises, and communication today and tomorrow. This section will build upon everything that the student has learned throughout the text. It also pushes the student to wonder about the possibilities of future means of communication. This text was well constructed with a sort of anthropological unit in the beginning and reflections for the future and society at the conclusion of the text. The content of the text was extremely appropriate with the new technologies that are available in today's world (Seymour, Ritz, and Cloghessy, 1987).

The last textbook that was reviewed was titled The Technology of Communication written by Haynie and Peterson. This text contained six sections that cover the systems of communication technology. The first unit of the text talks about communications today but is rather short in length. Section two starts out with communicating through drawings. The section concludes with a chapter on drawing with computers. The content of section two basically covers drafting procedures and different types of drawing representation. Section three of this text covers communication through photo and optical systems. The first chapter explores the development of photography. The remaining chapters deal with recording images and turning those images into photographs. The following section, section four introduces the student to communication through print technology. The section starts with letters and words or typography, then moves toward communication by books and other

printed media. The next chapter deals with the actual printing process then concludes the section with finishing processes for printed materials. The last technical chapter talks about broadcast and mass communication. This is sub-divided into three parts, advanced electronic and video systems, radio and television, and followed up with a chapter on production of television and radio programs. The last section of this textbook is devoted to spurring the student to think about the possibilities of communication technology in the future along with the trends. The last chapter of this section has the student take a look at communication in a broad sense, showing them where the world came from and where it might be headed. This text, although up to date, seemed to lack some very important concepts about technologies that are available to students today (Haynie and Peterson, 1995).

Throughout the review of related textbooks, the researcher found some trends that will not be obsolete and some that were not given proper explanation. More information about important topics as well as less important topics will be considered in more review of related articles.

EXAMINATION OF THE TOPICS IN THE ILLINOIS CURRICULUM FOR COMMUNICATION TECHNOLOGY IN THE PUBLIC HIGH SCHOOLS

This curriculum model was written in 1990 with new technologies in mind. The curriculum is divided into five sections. The first section is an introduction and overview to communication technology. The second section deals with drafting and design. The section is further divided into the procedures of drafting, and the different views of drawings. The last portion of this section teaches the students to read drawings and charts. The section is

finalized with activities and communication through maps. The second section goes into photography, including selection of subjects, processing and presentation. There are activities included to enrich the student's knowledge. The third section is limited. It deals with graphic arts. The section lacks very much information about other means of graphic communication like lithography or other new processes. The only major topic covered under graphic arts is thermal screen-printing. The largest section of the curriculum is the fourth section. It deals with processing and communicating information with computers. This section divides into twelve sub-sections that cover topics that range from the basics of computers to languages, programs, and planning. The other half of the section talks about applications of computers. Word processing, electronic publishing, computer-aided drafting, robotics, imaging, and bar coding. The topics that are introduced in section four are reflective of some of the newer advances is the area of communications. The last section of the curriculum guide is an introduction to telecommunications. The topics under this section are telephone and television technology and fiber optics. There are a few gaps in the technology that is currently available in the area of telecommunications (Gallo, 1990).

This curriculum has the necessary base for the study of communication, but it lacks depth of content. This content must come from the new advances in communication technology and some other general topics that this curriculum guide does not include.

SUMMARY

As shown in the literature that has been reviewed, extensive analyzing was performed to obtain the necessary data from the textbooks that were written for the communication

technology course, the approved curriculum guide for the state, and a curriculum guide from another state that was written recently to include some of the new technologies that affect communications. With all of the material that has been identified, there is a definite need to update the 1985 curriculum for communication technology with the advancements that have brought communications to its leading edge.

The following chapter will outline the methods and procedures used for the completion of this study. Chapter IV will report the findings of the study and Chapter V will present a summary, conclusions, and recommendations.

CHAPTER III

METHODS AND PROCEDURES

Chapter III will describe the methods and procedures that were used to undertake this study. Within this chapter, there will be a description of the population, instrument design, methods of data collection, and summary that were used in completing the research.

Population

The population of this study was restricted to printed materials. These printed materials came in the form of books that were written for Communication Technology courses. The other materials that were used were a Virginia Curriculum for Communication Technology and a curriculum guide from the State of Illinois. This was by no means the entire population of resources, but a random sample of resources to compare the topics that are contained within.

Instrument Design

The instrument design was in the form of a self made matrix. This matrix was designed to record the topical information of the literature being analyzed. The matrix also records the topics and sub-topics that are contained within the books. The topics and sub-topics are recorded in the order that they appear in the literature.

Methods of Data Collecting

The data for this study was collected by means of a self made matrix. The matrix recorded the important information about the author(s) and curriculum content needed for documentation. The topics were listed with a short description of what is covered in that particular chapter or section of the text. Upon completion of the review of the texts, the topics were compared from all of the texts that were used in the study, and then the topics were compared to those that were found in the curriculum guide for Communication Technology in the State of Virginia. By process of elimination and of relevance to the topic, a suggested list of topics was constructed to replace the 1985 Virginia curriculum.

Summary

The methods and procedures for conducting this research project were explained at the beginning of the chapter. The population was explained, the instrument design was introduced, and the method of data collection was explained to better understand the procedure for this study. The results of the data collection will be compiled and presented in Chapter IV. Summary, Conclusions, and Recommendations for this study will be presented in Chapter V.

CHAPTER IV

Chapter IV will present the information that was found in the texts that were used in conducting the research. The problem of this study was to compare the topics that are taught in Virginia Public Schools communication technology curriculum guide to topics that the literature in the field of communication technology suggests should be taught in the public schools. The research goals of this study were to determine:

1. The differences between the topics that are listed in the curriculum guide to the topics that are listed in textbooks that focus on communication technology.
2. The topics that should be added to the curriculum and that are suggested for deletion would also be determined.

The first piece of literature that was examined was the curriculum guide for Virginia Public Schools for communication technology. This document was divided into eight sections (see Table 4-1). The first section was an introduction to communications. The second section centered on developing a communications model. The third section of the guide focused on using one-way telecommunication systems. This section lead into the next section, which was understanding and using two-way telecommunications. The fifth section introduces the students to drafting equipment and common drafting techniques. Section six and seven both explain the generation and transferring of images for graphic communications. The last section in the curriculum guide for communication technology involves the participation of students in a communication enterprise (Virginia Curriculum for Communication Technology, 1985).

Virginia Curriculum Guide for Communication Technology

Section 1	Introducing Communication Systems
Section 2	Developing a Communication Model
Section 3	Using One-way Telecommunication Systems
Section 4	Two-way Telecommunication Systems
Section 5	Drafting Equipment and Techniques
Section 6	Generating Images for Graphic Communication
Section 7	Transferring Images for Graphic Communication
Section 8	Participating in a Communication Enterprise

Table 4-1

In C.D. Johnson's communication textbook, Communication Systems, there are seven sections that are further divided into forty-one chapters (see Table 4-2). The first section of the text starts with an introduction to communication. There are three chapters contained in section one. The three chapters give the student an introduction to communications, technology and communications, and communication systems. Section two provides the student with basic communication skills. There are four chapters within section two. These chapters examine design and problem solving, measurement systems and quality assurance, communicating ideas by sketches, and safety and health concerns. Section three provides information about graphic communications especially drafting and computer aided design. The eight chapters in section three discuss technical drawings, the basics of drafting, geometry for drafting, multi-view drawings, dimensioning, pictorial drawings, pattern development and packaging, and computer aided drafting. Section four talks about photography technology. There are four chapters in section four. The chapters start off with the basics of photography, then moves into the taking of pictures. The third chapter in section four explains the processing of film and making prints. The last chapter of section four talks about color photography. Section five provides information about graphic arts and

desktop publishing. There are ten chapters that explain various topics in graphics and desktop publishing. The first two chapters in section five deals with the designing, image generation, and assembly of a graphic arts product. The next chapter introduces electronic publishing or desktop publishing. The fourth chapter in section five talks about graphic arts photos. The remaining chapters explain the processes of screen-printing, lithography, relief printing, gravure printing, specialty printing and reproduction, and several finishing operations and techniques. Section six introduces electronic communications to the student. There are seven chapters in section six. The first chapter introduces computers to the student. The next chapter explains computer software. The third chapter examines data communications with the use of electronics. The next chapter talks about communication with sound technology. Chapters five and six deal with moving images and video productions. The last chapter examines long distance messages with wave technology. The last section, section seven, relates communication jobs and the student. There are four chapters within section seven. The first is an orientation to business. The next chapter talks about finding a job, which ties in the third chapter, careers in communications. The last chapter of section seven studies the impacts that communication technology has on the student (Johnson, 1992).

Communication Systems by C.D. Johnson

Section 1	Introduction to Communication
Chapter 1	Introduction to Communication
Chapter 2	Technology and Communication
Chapter 3	Communication Systems
Section 2	Basic Communication Skills
Chapter 4	Design and Problem solving
Chapter 5	Measurement Systems and Quality Assurance
Chapter 6	Communication Ideas by Sketching
Chapter 7	Safety and Health Concerns
Section 3	Graphic Communications- Drafting and CAD

Chapter 8	Technical Drawing
Chapter 9	Getting Started in Drafting
Chapter 10	Geometry for Drawing
Chapter 11	Multiview Drawings
Chapter 12	Dimensioning
Chapter 13	Pictorial Drawings
Chapter 14	Pattern Development and Packaging
Chapter 15	Computer Aided Drafting
Section 4	Graphic Communications- Photography
Chapter 16	Photography Basics
Chapter 17	Taking Pictures
Chapter 18	Processing Film and Making Prints
Chapter 19	Color Photography
Section 5	Graphic Communications- Graphic Arts and DTP
Chapter 20	Designing a Graphic Arts Product
Chapter 21	Image Generation and Assembly
Chapter 22	DTP/Electronic Publishing
Chapter 23	Graphic Arts Photography
Chapter 24	Screen Printing
Chapter 25	Lithography
Chapter 26	Relief Printing
Chapter 27	Gravure Printing
Chapter 28	Special Printing and Reprography
Chapter 29	Finishing Operations
Section 6	Introduction to Electronic Communications
Chapter 30	Introduction to electronic Communications
Chapter 31	Computers
Chapter 32	Computer Software
Chapter 33	Data Communications
Chapter 34	Communication with Sound
Chapter 35	Moving Images
Chapter 36	Video Productions
Chapter 37	Long Distance Messages with Waves
Section 7	Communication. Jobs, and You
Chapter 38	Orientation to Business
Chapter 39	Finding a Job
Chapter 40	Careers in Communications
Chapter 41	Impacts of Technology

Table 4-2

Mark Sanders' textbook, Communication Technology- Today and Tomorrow, is sectioned into six sections with eighteen chapters (see Table 4-3). The first section provides the reader with an introduction to communication technology. There are three chapters in section one. The first was understanding communication systems. The next chapters

examine the changing nature of communication technology. The last chapter in section one deals with the impacts of communication technology on society. Section two of the text introduces data communication systems. There are three chapters in section two that provide the reader with an explanation of computers, computer hardware, and computer applications. Section three examines technical design systems. This section contains three chapters. The first chapter explains the principles of technical design. The second chapter talks about the technical design processes which is followed up by the last chapter on computer aided drafting. The fourth section contains three chapters on optical systems. The first chapter in this section deals with the principles of optical systems. The last two chapters examine photography and the application of photography. Section five introduces graphic production systems to the student. The three chapters in section five deal with message design, composition, and assembly. They also contain information on film conversions and assembly as well as message transfer and product conversion. The last section, section six, also contains three chapters. These chapters examine the principles of audio and video communication, the equipment necessary to communicate through audio and video, and the applications of audio and video communications (Sanders, 1991).

Communication Technology-Today and Tomorrow by Mark Sanders

Section 1	Introduction to Communication Technology
Chapter 1	Understanding Communication Systems
Chapter 2	Changing Nature of Communication Technology
Chapter 3	Impacts of Communication Technology
Section 2	Data Communication Systems
Chapter 4	Introduction to Computers
Chapter 5	Computer Hardware
Chapter 6	Computer Applications
Section 3	Technical Design Systems
Chapter 7	Principles of Technical Design
Chapter 8	Technical Design Process
Chapter 9	CAD

Section 4	Optical Systems
Chapter 10	Principles of Optical Systems
Chapter 11	Photography
Chapter 12	Application of Photography
Section 5	Graphic Production Systems
Chapter 13	Message Design, Composition, and Assembly
Chapter 14	Film Conversion and Assembly
Chapter 15	Message Transfer and Product Conversion
Section 6	Audio and Video Systems
Chapter 16	Principles of Audio and Video Communication
Chapter 17	Audio and Video Equipment
Chapter 18	Application of Audio and Video

Table 4-3

Barden and Hackers' textbook, Communication Technology, is divided into six sections with twenty-two chapters (see Table 4-4). The first section introduces the student to the nature of communications. This is done by asking the question, "what is communication?" in chapter one. Chapter two discusses the role that computers play in communication technology. Section two examines technical and computer aided drafting. There are four chapters in this section. The first chapter deals with sketching and illustrating techniques. The next chapter examines technical drawing techniques. The third chapter in section two deals with drawings for production of products. The last chapter in this section introduces computer aided drafting and design techniques. The third section of this text talks about graphic reproduction. There are five chapters in section three. The first chapter explains graphic design, image generation, and assembly. The next chapter introduces electronic publishing or desktop publishing. The last three chapters talk about image preparation, transfer and finishing of a graphic product. Section four contains information about photography and motion pictures. It accomplishes this with four chapters. The first

chapter introduces the student to cameras and the film that is used or available. The next two chapters deal with photographic techniques and darkroom procedures. The last chapter of section four examines motion pictures and animation. Section five of the text covers electricity and electronics in communication. The six chapters within section five talk about communication by wire, radio and television communication, microwaves, satellites, and fiber optics, the digital world we live in, and recording systems in communication. The last section of the text as well as the last chapter examine the possibilities of the future of communication technology (Barden, 1990).

Communication Technology by Barden and Hacker

Section 1	Nature of Communications
Chapter 1	What is Communications?
Chapter 2	Role of Computers in Communications
Section 2	Technical and Computer Aided Drawing
Chapter 3	Sketching and Illustration
Chapter 4	Technical Drawing Techniques
Chapter 5	Drawing for Production
Chapter 6	Computer Aided Design and Drafting
Section 3	Graphic Reproduction
Chapter 7	Graphic Design, Image Generation and Assembly
Chapter 8	Desktop and Electronic Publishing
Chapter 9	Image Preparation
Chapter 10	Image Transfer
Chapter 11	Finishing
Section 4	Photography and Motion Pictures
Chapter 12	Cameras and Film
Chapter 13	Photographic Techniques
Chapter 14	Darkroom Processes
Chapter 15	Motion Pictures and Animation
Section 5	Electronic Communications
Chapter 16	Electricity and Electronics
Chapter 17	Communication by Wire
Chapter 18	Radio and Television
Chapter 19	Microwaves, Satellites, and Fiber Optics
Chapter 20	Our Digital World
Chapter 21	Recording Systems
Section 6	The Future of Integrated Communication Systems
Chapter 22	The Future of Communications

Table 4-4

Exploring Communications by Seymour, Ritz, and Cloghessy contains five sections with twenty-six chapters (see Table 4-5). Section one introduces communications to the student. This section contains six chapters. These chapters deal with an introduction into communications, the history of communications, the communication process, the social and cultural influences, industries and careers in communications, and communication systems. Section two talks about technical graphics. There are five chapters within section two. The first chapter introduces the student to technical graphics. The next chapter explains the procedures of technical drawing. The third chapter in this section contains information on sketching and drawing. The last two chapters explain orthographic and pictorial drawings. Section three of the text, which contains six chapters, talks about printed graphics. The first chapter introduces the student to graphic communications. The next chapter explains the graphic design and production processes. The third chapter in section three deals with screen-printing. The fourth chapter talks about lithographic printing. The next chapter explains continuos tone photographs. The last chapter of section three wraps up with specialty printing methods. Section four gives an introduction of electronic communication. There are seven chapter contained within section four. They start off with an introduction to electronic communications. The next chapter explains the basics of electronic communication systems. The third chapter introduces telecommunications. The fourth chapter explains light communications. The fifth chapter in this section talks about acoustical communications. The sixth chapter contains information about broadcast communications. The last chapter in this section covers computers and data processing in communications. The last section, section five, deals with communication and society. This section contains two chapters.

These chapters contain topics on communication enterprises and communications today and tomorrow (Seymour, 1987).

Exploring Communications by Seymour, Ritz, and Cloghessy

Section 1	Introduction to Communication
Chapter 1	Introduction to Communication
Chapter 2	History of Communication Technology
Chapter 3	Communication Process
Chapter 4	Social and Cultural Influences
Chapter 5	Industries and Careers in Communication
Chapter 6	Technology Communication Systems
Section 2	Technical Graphics
Chapter 7	Introduction to Technical Graphics
Chapter 8	Technical Graphics Procedure
Chapter 9	Technical Sketching and Drawing
Chapter 10	Orthographic Drawings
Chapter 11	Pictorial Drawings
Section 3	Printed Graphics
Chapter 12	Introduction to Graphic Communications
Chapter 13	Graphic Design and Production
Chapter 14	Screen Process Printing
Chapter 15	Lithographic Process
Chapter 16	Continuos Tone Photography
Chapter 17	Specialty Printing Methods
Section 4	Electronic Communications
Chapter 18	Introduction to Electronic Communications
Chapter 19	Basics of Electronic Communication Systems
Chapter 20	Telecommunications
Chapter 21	Light Communications
Chapter 22	Acoustical Communications
Chapter 23	Broadcast
Chapter 24	Computers and Data Processing
Section 5	Communication and Society
Chapter 25	Communication Enterprises
Chapter 26	Communication Today and Tomorrow

Table 4-5

The text, The Technology of Communication by Haynie and Peterson, has six sections with seventeen chapters (see Table 4-6). The first section is an introduction into communications with one chapter about communications in today's society. Section two deals with communication through the use of drawings. There are three chapters that explain

technical drawing, drawings that look like pictures, and drawings that are constructed with the aid of computers. Section three contains topics of photographic and optical systems. There are three chapters in this section. The first chapter explains the development of photographs. The last two chapters deal with recording images photographically and turning them into prints. The fourth section of the text introduces the student to communication through print. The text does this in five chapters. The first chapter talks about typography as words and/or letters. The next chapter explains typography, the characteristics of type. The third chapter talks about communication through the use of books and other printed media. The fourth chapter explains the printing process. The last chapter deals with the finished publications of print media. Section five of the text ventures into broadcast and mass communication. The three chapters in this section deal with advanced electronic and video systems, broadcast, radio, and TV. The last chapter talks about the actual production of a broadcast presentation. The last section, section six, invites the student to think about the future of communications. There are two chapters in this section. The first chapter talks about future communication trends and possibilities. The last chapter takes a step back to view the big picture of communication technology (Haynie, 1995).

The Technology of Communication by Haynie and Peterson

Section 1	Getting Started in Communication Technology
Chapter 1	Communication Technology Today
Section 2	Communication Through Drawing Systems
Chapter 2	Communication Through Drawing Systems
Chapter 3	Drawings That Look Like Pictures
Chapter 4	Drawing with Computers
Section 3	Communication Through Photo and Optical Systems
Chapter 5	Development of Photography
Chapter 6	Recording Images Photographically
Chapter 7	Turning Recorded Images into Photographs
Section 4	Communication Through Print
Chapter 8	Letters and Words: Typography

Chapter 9	Typography: Characteristics of Type
Chapter 10	Communication Through Books and Printed Materials
Chapter 11	Printing Process
Chapter 12	Finished Publications
Section 5	Broadcast and Mass Communication
Chapter 13	Advanced Electronic and Video Systems
Chapter 14	Broadcast: Radio and Television
Chapter 15	Lights, Camera, Action
Section 6	Communication Technology and the Future
Chapter 16	Future Communication Trends and Possibilities
Chapter 17	Communication Technology- The Big Picture

Table 4-6

The last piece of literature that was reviewed was the Communication Technology Curriculum Material FY91 by Dennis Gallo and others. This curriculum guide contained five sections with no individual chapters within each section (see Table 4-7). Section one was an introduction to communication technology. Section two introduced photography to the student. Graphic arts was the topic of section three. Section four contains information about processing and communicating information with the use of a computer. The last section of the curriculum guide dealt with telecommunications technology. There was no section to tie the topics together (Gallo, 1990).

Communication Technology Curriculum Material FY91 by D. Gallo and others

Section 1	Introduction to Communication Technology
Section 2	Photography
Section 3	Graphic Arts
Section 4	Processing and Communicating Information with Computers
Section 5	Telecommunication Technology

Table 4-7

Summary

Chapter IV presented the data that was collected in the study of comparing the topics that are taught in Virginia Public Schools communication technology curriculum guide to the

topics that the literature in the field of communication technology suggests be taught in the public schools. This information was transferred into tables for better examination and interpretation. Chapter V will give a summary, conclusions, and recommendations for suggested topics that might be included in a new communication technology curriculum guide.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of the study was to compare the topics that are taught in Virginia Public Schools communication technology curriculum guide to topics that the literature in the field of communication technology suggests should be taught in the public schools. This chapter summarizes the study, draws conclusions based on the findings and research goals, and makes recommendations based on the findings.

Summary

This study was conducted to find out what topics of the Virginia Public School communication technology curriculum guide were in need of revision according to literature in the communication technology field. The significance of the study arose from the increasing need to supply students with knowledge that is up to date and relevant. It seems pointless to consume valuable time teaching topics that are not favorable for the students to learn. Instead, that time should be filled with topics that the students can relate to in their time and build upon to increase the knowledge base for later use. The study focused on the Virginia Public School's communication technology curriculum guide for the high school level. The literature that was used was written for the high school level in communications technology. This study was restricted to the use of printed materials. The data was collected by employing a self-designed matrix. This matrix recorded the topical information of the literature, topics, and sub-topics that were contained within the text. The topics and sub-

topics were recorded in order in which they appeared in the literature. It was through the above research that the research goals could be answered.

CONCLUSIONS

Based on the findings the following conclusions were made about the study. The first research goal for the study was to determine the differences between the topics that were listed in the curriculum guide to the topics that are listed in textbooks that focus on communication technology. The research that was done for this study revealed that the significant differences in the curriculum guide and the textbooks were that the topics in the curriculum guide were outdated, irrelevant, or lengthy. The topics that were found in the textbooks that focused on communication technology contained topics that were in sync with the current technology for the most part and also offered newer, shorter ways to complete a certain process. See Table 5-1 for a comparative list of topics that were used in the study.

The second research goal for this study was to determine the topics that should be added to the curriculum and the topics that are suggested for deletion. Through the research that was preformed during this study, much information was gathered. To answer the second research goal depends on the curriculum developers and their individual wants and concerns. This researcher will attempt to offer a suggestion for some topics to add to the curriculum as well as some topics that should be deleted. The first and most important topic that should be added to the curriculum guide would be the use of computers in communication technology. The students could study the application of computers and the impacts that they present to the field of communications. A unit on electronic communication that is more current or

relevant to today's society would be another addition that should be made to the curriculum. Several other units that should be included in the communication technology curriculum are units of safety, problem solving, quality assurance, computer aided drafting, desktop publishing, and careers. Another suggestion for an added topic would be a topic that examined the impacts of communication on society from a historical to current standpoint. The final addition to the curriculum should be a unit that explores the future possibilities of communication technology. There are no specific units that the researcher felt should have been deleted. The only deletion should come from portions of each unit. These portions are those that contain information that is either useless in today's society or have been replaced by more advanced technology. See Table 5-1 for a comparative list of topics.

It can be concluded that the research shows that in comparison of the current communication technology curriculum guide to the current topics that are found in literature in the field of communication technology that there is a definite need to review the current curriculum guide. Curriculum developers must consider the possibilities of updating the topics to correlate to the textbooks that are being used in communication classes to provide a better education to each student about the current and new practices in communications.

Comparative List of Topics Found in Literature

Topics	Va. Curriculum	Johnson	Sanders	Barden	Seymour	Haynie	Gallo
Intro to Comm.	X	X	X	X	X	X	X
Problem Solving		X			X		
Measurement Systems		X					
Quality		X					

Assurance							
Safety		X					
Drafting	X	X	X	X	X	X	
CAD		X	X	X	X	X	
Photography	X	X	X	X	X	X	X
DTP		X	X	X	X	X	X
Image Generation	X	X	X	X	X	X	X
Screen printing	X	X	X	X	X	X	X
Lithography	X	X	X	X	X	X	X
Relief printing	X	X	X	X	X	X	X
Special printing		X	X	X	X	X	X
Finishing		X	X	X	X	X	X
Computers		X	X	X	X		X
Software		X	X		X		X
Audio Comm.	X	X	X	X	X	X	X
Video Comm.	X	X	X	X	X	X	X
Long Distance Comm.		X	X	X	X	X	X
Business	X	X			X		
Careers		X			X		
Impacts		X	X		X	X	
Electricity/ electronic				X	X	X	
Future				X	X	X	

Table 5-1

RECOMMENDATIONS

Based on the findings and conclusions of this study, the researcher submits the following recommendations:

1. It is recommended that a committee review the current communication technology curriculum guide. This review should include the addition of topics that are selected in accordance with current technology. In addition, the committee should examine certain topics to be deleted or severely revised. There is no standard or set list of topics that should be included in a communication technology curriculum guide. The topics should reflect the needs of the students, the school,

and the community but should also include the use of currently available technology.

2. It is recommended that there be more research done on this study at a state level. This would solidify the understanding for the need of a new or revised communication technology curriculum to update the curriculum guide that was written in 1985.
3. It is also recommended that the state move away from curriculum guides in technical areas that change rapidly and use up to date textbooks in there respected fields.

BIBLIOGRAPHY

Barden, R., Hacker, M. (1990) Communication Technology. New York: Delmar.

Gallo, Dennis, et al. (1990) Communication Technology Curriculum Material FY 91. Unpublished manuscript, Illinois State University.

Haynie, W.J. III, Peterson, R.E. (1995) The Technology of Communication. Ohio: International Thompson Publishing Company.

Johnson, C.D. (1992) Communication Systems (1st Edition). Iowa: GoodHeart-Willcox.

Sanders, Mark (1991) Communication Technology Today and Tomorrow. New York: McGraw-Hill.

Seymour, R.D., Ritz, J.M., Cloghessy, F.A. (1987) Exploring Communications. Illinois: GoodHeart-Willcox.

Virginia Public Schools Curriculum Guide for communications technology, (1985).